

Translation of the Italian Patent Application No. VI2001A000180

TITLE

STOPPER FOR BOTTLING RARE WINES, PARTICULARLY SUITABLE FOR  
PRESERVATION AND REFINEMENT OF THE PRODUCT

5    ABSTRACT

The invention concerns a stopper to be used for bottling rare wines and is particularly suitable for the preservation and refinement of the wines during aging.

10   The stopper, designed in its traditional cylindrical shape, comprises at least one homogeneous part in synthetic material and at least one part in porous natural material which, while communicating with the outside of the bottle, allows gaseous exchange between the bottled product and the external atmosphere, for its refinement.

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Fig. 1

Description of the industrial invention entitled: " STOPPER FOR BOTTLING RARE WINES, PARTICULARLY SUITABLE FOR PRESERVATION AND REFINEMENT OF THE PRODUCT ".

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DESCRIPTION

According to the invention, a stopper for bottling rare wines is made, which is particularly suitable for the preservation and refinement of the same wines.

10 The refinement in the bottle takes place by means of the chemical-physical and biological reactions that manifest themselves in wine and is particularly important for blending the substances.

The refinement in the bottle which produces the so-called maturation of the wine is important, because the right balance of aromas and fragrances is achieved, together with a complete harmony of taste.

15 The great variety of corks and stoppers currently present in the market is well known: the traditional ones made of cork, those made of various agglomerates, right up to the more recent types made of homogeneous synthetic materials.

Not all stoppers can be considered perfectly neutral as regards the contents of the bottle.

20 The material the stopper is made of can interact in various ways with the wine in the bottle, and can therefore modify the sensory profile of the product, while the wine-making sector would naturally desire that all variables be perfectly under control in order to avoid abnormal reactions.

The main concerns are related to mechanical problems as well as the 25 excessive or insufficient permeability to gases of the existing stoppers.

Advantages and disadvantages belong to both to stoppers made of cork and agglomerate material and to those made in homogeneous synthetic material.

30 One of the inconveniences of stoppers made of cork is the so-called "cork-taste" of the wine and this is due essentially to vanillin, which is almost always present in different percentages in cork. Therefore, it becomes extremely difficult to make a totally neutral cork stopper, despite all the preliminary treatments that these corks normally undergo before use.

Nevertheless, cork stoppers have the advantage of guaranteeing water tightness and to control the gaseous exchanges between the bottled product 35 and the external surroundings very efficiently. Therefore the stoppers made of

cork are those that contribute in an important manner to the refinement of the product and the natural aging of the wine, which continues to evolve in the bottle, assuming the typical bouquet of the various products it contains.

The advantages and values of the synthetic stoppers are the following: wine  
5 does not alter in time; mechanical durability and easy extraction; water  
tightness; chemical inertness and impermeability to gases. These features  
suggest that the stoppers made of synthetic material can be suitable for wines  
that are used within brief lengths of time, that is within two or three years, since  
10 aging cannot be obtained without the gradual gaseous exchange between the  
bottled wine and the external surroundings which, instead, is typical of the cork  
stoppers.

The present invention proposes to remedy the above-mentioned  
inconveniences and is able to comprise in a single stopper the advantages of  
cork and synthetic material stoppers.

15 The above-mentioned aim is achieved by producing a stopper which is  
particularly suitable for refinement and preservation of bottled wine and that,  
according to the contents of the first claim, is characterized in that it comprises  
at least a first homogeneous part made of synthetic material and at least a  
20 second porous part made of natural material, said first part being crossed by at  
least one duct apt to allow the gaseous exchange of said product with the  
external atmosphere, by means of said second porous part.

The invented stopper, having its typical cylindrical shape, comprises both  
natural material such as cork, agglomerates and similar, and synthetic  
material, complying to necessary characteristics such as neutrality and  
25 hygiene and the various modes of realization are shown in the attached table  
of drawings.

Fig. 1 shows a stopper in section consisting of a part 1 made of synthetic  
material, substantially cylindrical and cup shaped, the cavity of which is wholly  
occupied by the porous part 2 made of cork, agglomerates or similar.

30 One or more ducts 3 allow communication between the inside of the bottle and  
the porous part 2 in order to enable the gaseous exchange between the  
bottled product and the external surroundings to take place.

Figs. 2, 3 and 7 are stoppers derived from the stopper shown in Fig. 1, adding  
one or more discs 4 to the one in Fig. 2, for example first-rate quality cork,  
35 inserting in the stopper in Fig. 3 a plurality of suitable section communicating

ducts 3 and increasing the number of cavities occupied by the porous material 2 in the one shown in Fig. 7.

5 Fig. 4 shows a similar stopper composed of a hollow cylindrical shell 5 made of synthetic material, completely filled with porous material 2, the base parts being provided with one or more ducts suited to allow the gaseous exchange between the product and the external atmosphere through the porous part.

10 Fig. 5 shows a stopper composed of a lower cylindrical part 6 made of synthetic material, provided with a plurality of ducts 3 and joined to the upper part 7, also cylindrical and of equal diameter, made of porous material, which favours the gaseous exchange between the product and the external surroundings.

15 Fig. 6 shows a stopper formed by a cylindrical part made of synthetic material, crossed lengthwise by one or more ducts 9 filled with porous material such as cork, agglomerated or similar, aiming to allow the desired gaseous exchange between the product and the external atmosphere.

20 Fig. 8 shows a stopper formed by a cylindrical part 10 made of synthetic material, crossed lengthwise by one or more communicating ducts 3 and provided with one or more discs made of porous material 11, similar to a membrane, which are placed in parallel position and spaced along the ducts 3 that communicate with the outside of the bottle.

25 Fig. 9 shows a similar stopper composed of a cylindrical part made of synthetic material 12, comprising one or more cavities on the tips, completely filled with the same number of parts made of porous material 13, communicating through one or more ducts 3 which have the function of promoting the gaseous exchange between the product and the external surroundings.

30 Fig. 10 shows a stopper obtained by matching a top part 14 made of synthetic material, crossed by one or more longitudinal ducts 3 and joined on the lower part to one or more discs 15, of equal diameter and made of porous material, such as first-rate cork. This type of stopper can be used, for example, to cork bottles of sparkling wine and similar.

Fig. 11 shows a stopper composed of a central cylindrical part 16 made of synthetic material, covered along the sides, in all its height, with one or more layers of porous material 17, to allow the gaseous exchange between the product and the external surroundings.

35 Fig. 12 shows a similar stopper, with the only difference that the covering 18

with one or more layers of porous material includes one of the bases of the central cylindrical part 16 made of synthetic material.

Fig. 13 is a stopper similar to that in diagram 11, the only difference being that the side covering 19 occupies a lower height than that of the cylindrical central part 20 made of synthetic material, and is precisely fitted into a reduced side seat present in the same central part 20.

Fig. 14 shows a stopper formed by a cylindrical part 21 made of synthetic material, completely covered by one or more layers of porous material 22 and crossed lengthwise by one or more communicating ducts 3.

10 Fig. 15 is a stopper similar to the previous one, the only difference being that the porous side covering 24 of the central cylindrical part made of synthetic material, extends over a lower height than that of the central part and is precisely fitted into a reduced seat present for the purpose in the central part made of synthetic material.

15 Fig. 16 shows a stopper from two views, vertical and horizontal, composed of a central cylindrical part made of synthetic material 25, covered along the sides with one or more layers of porous material 26 and comprising two circular bases 27 projecting to the diameter of the porous part 26, with a notched outline to allow the gaseous exchange between the bottled product and the 20 external atmosphere.

By use of the stoppers under discussions, the oxidation processes are regularized, thus finding a remedy to the aging differences in the wine from bottle to bottle, since the gaseous exchange processes between the bottled product and the external surroundings, are standardized.

25 By means of said stoppers, a proper refinement of the product is obtained with excellent tightness, elevated elasticity, absolute non-toxicity and avoidance of the leaking phenomenon when bottles are placed in different positions.

The invented stoppers can be used by all types of corking machines, included those without vacuum pumps, and last in time maintaining qualities such as 30 weight, density, elasticity, tightness and extractability.

From the explanations and the illustrations, the novelty and originality of the invented stopper in all its various forms are evident, even though during manufacture changes could be made to some elements, however these will remain in line with the explained concepts of the invention.

35 Each variant produced during the actual manufacture is included in the present invention.

## CLAIMS

1) Stopper for bottling rare wines, composed of a substantially cylindrical body made of elastic material having hygienic, inalterability and neutrality features as regards to the product preserved in the bottles,  
5 **characterized in that** it comprises at least a first homogeneous part made of synthetic material and at least a second porous part made of natural material, said first part being crossed by at least one duct suitable to allow the gaseous exchange between said product and the external atmosphere by means of said second porous part.

10 2) Stopper according to claim 1) **characterized in that** said first homogeneous and substantially cylindrical part (1) is shaped to form a cup, the cavity of which is wholly occupied by said second porous part (2), also substantially cylindrical, said first homogeneous part being crossed vertically by at least one said duct (3) suitable to allow communication between the  
15 inside of the bottle with said second porous part which has the top surface in contact with the external surroundings.

20 3) Stopper according to claim 1) **characterized in that** said second porous part (2) which completely occupies the cup shaped cavity of said first homogeneous part made of synthetic material (1) comprises at least one disk made of cork (4).

25 4) Stopper according to claim 1) **characterized in that** said first homogeneous essentially cylindrical part (1) made of synthetic material, comprises two or more said second porous parts made of cork or agglomerates (2), and two or more ducts (3) suitable to allow communication between the bottled product and the external atmosphere through said porous parts (2).

30 5) Stopper according to claim 1) **characterized in that** said first homogeneous part is shaped to form a closed hollow cylinder (5) which completely contains said second porous part (2) and has both base parts provided with at least one of said ducts (3) apt to connect said second porous part (2) both with the inside and the outside surroundings of the bottle.

35 6) Stopper according to claim 1) **characterized in that** said first homogeneous, substantially cylindrical part made of synthetic material (6) is overlapped by said second porous part having equal diameter (7) and is crossed vertically by at least one of said ducts (3) suitable to connect the

inside of the bottle to said second porous part.

5 7) Stopper according to claim 1) **characterized in that** said first essentially cylindrical part made of synthetic material (8) includes at least one longitudinal duct filled with said porous material (9) made of cork or agglomerate, in order to allow gaseous exchange between the bottled product and the external atmosphere.

10 8) Stopper according to claim 1) **characterized in that** said first cylindrical part made of synthetic material (12) includes on both ends one or more cavities filled with the same number of parts made of porous material (13) and at least one of said ducts (3) that allow the gaseous exchange between the product and the external atmosphere.

15 9) Stopper according to claim 1) **characterized in that** said first cylindrical part made of synthetic material (10) comprises one or more disks made of porous material (11), like as a membrane, which are placed parallel and spaced along at least one of said ducts (3) that allow the gaseous exchange between the bottled product and the external atmosphere.

20 10) Stopper according to claim 1) **characterized in that** said first cylindrical part made of synthetic material (14) includes at one end one or more disks made of porous material having equal diameter (15) and is provided with at least one of said ducts (3) connected to said disks, suitable for promoting the gaseous exchange between the bottled product and the external atmosphere.

25 11) Stopper according to claim 1) **characterized in that** said first cylindrical part made of synthetic material (16) includes a base and side surface covered by at least one layer of porous material (18) which promotes the gaseous exchange between the product and the external atmosphere.

30 12) Stopper according to claim 1) **characterized in that** said first homogeneous cylindrical part made of synthetic material (25) comprises, on the sides, a covering made of porous material (26) along almost its entire height, while the two base parts made of synthetic material (27) have a peripheral notching that partially uncovers the porous part to allow the gaseous exchange between the bottled product and the external atmosphere, through said side covering (26).

35 13) Stopper according to claim 1) **characterized in that** said first homogeneous cylindrical part made of synthetic material (23) comprises the

two base parts and a side covering (24) along almost all its height, made of porous material, and has at least one of said ducts (3) for the gaseous exchange between the bottled product and the external atmosphere.

14) Stopper according to claim 1) **characterized in that** it comprises  
5 said substantially cylindrical part made of synthetic material, composed of cork agglomerate and synthetic material having the characteristic of allowing the gaseous exchange between the bottled product and the external atmosphere.

15) Stopper according to claim 1) **characterized in that** it comprises  
10 said substantially cylindrical part made of synthetic material, with at least one of said longitudinal rectilinear, twisted or differently shaped ducts, the size of which is suitable to allow connection between the inside of the bottle and the outside atmosphere.